FINDING OF NO SIGNIFICANT IMPACT
FOR THE PROPOSED
TOXECON RETROFIT FOR MERCURY AND MULTI-POLLUTANT CONTROL PROJECT

AGENCY: U.S. Department of Energy (DOE)

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: DOE has prepared an Environmental Assessment (EA), DOE/EA-1476, to analyze the potential impacts of participating in a project to demonstrate technology (the TOXECON process) with potential for reducing emissions of mercury, particulate matter, sulfur dioxide, oxides of nitrogen, and hydrochloric acid. Demonstration of the technology would be accomplished by constructing and operating an integrated emissions control system for three 90-megawatt boiler units at We Energies' coal-fired Presque Isle Power Plant in Marquette, Michigan.

If approved, DOE would provide 50% of the funding (approximately $25 million) for a 5-year project to demonstrate advanced emission control technology that would involve the addition of sorbent injection equipment and a baghouse for particulate collection to the Presque Isle Power Plant. Following completion of the demonstration project, We Energies could decide to continue operation of the emission control system.

Based on the analyses in the EA, DOE has determined that the proposed action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act (NEPA) of 1969, 42 United States Code 4321, *et seq*. Therefore, preparation of an Environmental Impact Statement is not required, and DOE is issuing this FONSI.

COPIES OF THE EA ARE AVAILABLE FROM:

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BACKGROUND: In response to a DOE competitive solicitation for demonstrating clean coal power technologies, a proposal from We Energies (also known as the Wisconsin Electric Power Company) and its partners, ADA Environmental Solutions, Cummins & Barnard, Environmental

Elements Corporation, and the Electric Power Research Institute, was selected for negotiation of a cooperative agreement to demonstrate the TOXECON process for mercury control on three coal-fired boilers at the Presque Isle Power Plant in Marquette, Michigan. Units 7 through 9 at the Power Plant, which burn subbituminous coal from the Power River Basin in Wyoming and use electrostatic precipitators for particulate control, would be used to demonstrate the process.

In the TOXECON process, sorbent (primarily activated carbon) injection is used downstream of an existing particulate collector for removal of all types of mercury species (elemental, oxidized, and particle-bound) and the resulting solid particles in the flue gas are collected in a new baghouse. In addition to mercury and particulate control, the TOXECON process would also potentially control sulfur and nitrogen oxides and acid gas emissions by injecting additional sorbents capable of removing these specific air pollutants. The proposed project would represent the first commercial-scale application of the TOXECON process to a coal-fired utility boiler, and a successful demonstration would prove that emissions control performance and cost targets are achievable at a commercial scale. The proposed project would also include development of continuous emissions monitoring for mercury in flue gas. Methods to extract captured mercury from the particles collected in the TOXECON baghouse would be examined to identify opportunities for reducing the amount of material requiring disposal.

DESCRIPTION OF THE PROPOSED ACTION: The proposed action is for DOE to provide, through a cooperative agreement with We Energies, about $25 million (50% of the total estimated cost) for a 5-year project to design, install, and test a system to remove mercury and other pollutants from emissions produced by three 90-megawatt, coal-fired boilers at the Presque Isle Power Plant in Marquette, Michigan. Equipment would be installed for receipt and storage of powdered activated carbon (PAC) and injection of the PAC at rates between 130 and 220 pounds per hour into the flue gas from power plant units 7, 8, and 9, downstream of the existing electrostatic precipitator at the plant. A new baghouse and ash handling system would be installed downstream of the PAC injection location to collect and handle the used carbon material and additional fly ash that would escape collection in the electrostatic precipitator.

During an approximately 39-month testing period, about 2,800 to 3,400 cubic yards of TOXECON ash would be collected in the new baghouse. We Energies and its project partners would investigate the feasibilities of extracting mercury from the ash to reduce disposal requirements and of identifying beneficial uses for some or all of the TOXECON ash. Ash for which beneficial uses cannot be identified would undergo disposal in the power plant's existing landfills, which have been identified by the Michigan Department of Environmental Quality as being appropriate for the waste stream. The ash volume to be generated would amount to no more than about 1.2% of the remaining capacity in Landfill No. 2 and about 0.1% of the permitted total landfill capacity in Landfills No. 2 and 3, which are used by We Energies for disposal of ash from the Presque Isle Power Plant.

During the planned cooperative agreement, temporary equipment would also be installed for receipt, storage, and injection of sodium- and lime-based sorbents upstream of the new baghouse.

This equipment would be used for short-term tests to demonstrate the effectiveness of the sorbents for removing sulfur and nitrogen oxides and acid gases. Sorbent injection during these short-term tests would be at rates up to 1,000 pounds per hour.

Following the 39 months of demonstration testing for DOE under the cooperative agreement, the TOXECON emission control system could continue in operation without Federal funding.

ENVIRONMENTAL CONSEQUENCES: The environmental consequences from constructing, operating, and testing the proposed TOXECON process at the Presque Isle Power Plant were analyzed in the EA. The environmental factors included in the analysis were: aesthetics; land use; air quality; water resources; floodplains and wetlands; ecological resources, including threatened and endangered species; transportation and traffic; waste management; groundwater; cultural resources; socioeconomics; noise; electromagnetic effects; and health and safety. Environmental justice and long-term and cumulative impacts were also considered.

The environmental analysis identified that the most notable changes to result from the proposed project would occur in the following areas: air emissions and waste management. No substantive adverse impacts or environmental concerns were identified from analyzing the effects of these changes.

AESTHETICS AND LAND USE: Construction of the proposed facility would require about 1.1 acres of land for the TOXECON baghouse, ash storage, and related facilities. All of the proposed facilities would occupy land that presently has a paved surface for industrial use. The architecture and colors to be used for the proposed new facilities would be similar to the adjacent, existing power plant structures.

AIR EMISSIONS: Temporary and localized increases in vehicular exhaust emissions and fugitive dust would occur during installation of the proposed new facilities. If needed, controls such as water application on exposed soils would be applied to minimize fugitive dust generation. Vehicle exhaust would be limited to the short duration of the construction effort. Operation of the proposed facilities would result in either beneficial impact on air quality from anticipated reductions in plantwide air emissions or no changes for pollutants that would not be affected by the proposed technology. A decrease in stack temperature would decrease plume rise, which could result in increased downwind, ground-level concentrations of pollutant emissions that experience little or no decrease in stack concentrations. Mercury reductions from Units 7, 8, and 9 could be decreased by 90% from operation of the TOXECON process, and short-term tests of sodium- and lime-based sorbents could potentially produce temporary reductions in sulfur oxide emissions of 30% to 70%, in nitrogen oxide emissions of 10% to 20%, and in acid gas (hydrogen chloride) emissions of up to 50%.

WATER RESOURCES: Operation of the proposed facilities could require up to 100 gallons per minute of service water for cooling flue gas ahead of the TOXECON system, which would result in a negligible reduction of 0.06% in the plantwide return flow of water supplied from Lake Superior.

FLOODPLAINS AND WETLANDS: The proposed facilities would be installed on a site that is above the 500-year floodplain, and no wetlands are located on or adjacent to the site proposed for the new facilities. Neither construction nor operation of the proposed facilities would affect floodplains or wetlands.

ECOLOGICAL RESOURCES: The proposed facilities would be located in a highly industrialized area that supports almost no plant or animal communities and no unique or protected species. Consultation with the U.S. Fish & Wildlife Service confirmed that no Federally listed or proposed species are known to occur within the project area.

TRAFFIC AND TRANSPORTATION: Increased traffic during the construction period would average 54 passenger vehicles per day, with an increase of 107 passenger vehicles per day during peak construction periods to support construction workers for the proposed new facilities. These increases would be comparable to increases experienced during routine maintenance outages at the power plant. Truck deliveries could reach about 20 per day during peak construction periods. Operation of the proposed new facilities would require delivery of about one 20-ton truck delivery of activated carbon every 7 to 9 days, and the volume of waste fly ash/carbon material would require about 2 truck shipments per week. The increased traffic and transportation requirements for the proposed project would not be expected to result in any discernable adverse effects to local roads and traffic conditions.

WASTE MANAGEMENT: Construction activities would result in small quantities of solid and liquid wastes, including solvents, paints, coatings, municipal wastes, fuel, adhesives, and empty containers, which are typical wastes from construction projects. The Marquette County municipal landfill could easily accommodate the construction wastes. The TOXECON solids collected in the new baghouse would be investigated to determine the feasibility of extracting mercury to reduce disposal requirements and to assess potential beneficial uses. Existing landfills, however, have been determined by the Michigan Department of Environmental Quality as appropriate for disposal of the waste material. The maximum quantity of material that would require disposal would occupy about 0.1% of the permitted total capacity of identified landfills.

GROUNDWATER: Groundwater would not be used as a water source for project construction or operation. Disposal of TOXECON wastes would be accomplished using an existing engineered landfill that is fully lined and equipped with a leachate collection system.

CULTURAL RESOURCES: Historic and cultural resources of significance would not be expected to exist on the previously disturbed and paved land that would be used for the proposed project. Consultation requests for information on historic, cultural, or archaeological resources of significance were implemented. A search of the Michigan records of historic places failed to indicate any properties that would be affected by the proposed project.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE: The workforce requirements for the proposed project would result in a small and beneficial impact on employment, income, and government

revenues. The proposed activity would not result in adverse ecological or health effects in census tracts with elevated proportions of low income or minority populations. No disproportionately high or adverse impact on minority or low-income communities would be expected.

NOISE: Temporary and intermittent noise increases would occur during facility construction from operation of construction equipment and material handling. These increases would be localized, sporadic, and limited to normal daytime working hours. Workers in these areas would be required to wear proper hearing protective equipment. Due to planned use of standard noise attenuation measures, natural and man-made terrain features, and distances to the nearest residences, no perceptible change in noise associated with construction or operation would be expected at the nearest residences or other off-site locations.

ELECTROMAGNETIC EFFECTS: No new sources of electromagnetic fields, such as transmission lines, would be required. As a result, no changes to existing electromagnetic field levels would result from the proposed new facilities.

HEALTH AND SAFETY: Occupational hazards created during facility construction would be limited to normal hazards associated with construction activities. No substantial differences with respect to occupational safety or industrial hygiene would be expected between current operations and operations following installation of the proposed new facilities. Safety and health regulations established by the Occupational Safety and Health Administration (OSHA) would be applicable to the types of construction and operational activities that would be needed for the proposed project; protective measures established by OSHA would be implemented to protect workers and the public. Workers would be protected from exposures during replacement or maintenance of baghouse components by wearing full-face respirators with dust filters, white paper suits, and gloves.

LONG-TERM AND CUMULATIVE IMPACTS: Following completion of the cooperative agreement with DOE, We Energies could continue to operate the TOXECON unit for emissions control. As a result, the proposed project would continue to reduce air emissions in the region and slightly decrease existing cumulative effects. Continued efforts by We Energies to increase beneficial reuse of coal ash and other residues from power plant operations would more than offset the additional ash collected by the new proposed baghouse.

ALTERNATIVES CONSIDERED: In addition to the proposed action, the no-action alternative was considered. Since the clean coal power program was established by Congress with a specific goal of providing funds for projects owned and controlled by non-Federal participants, for the purpose of accelerating commercial deployment of advanced coal-based technologies, DOE must give substantial weight to the participant's process in analyzing reasonable alternatives and selecting a preferred approach to meet the participant's needs and the program's objectives. Upon selection of a project for negotiation, DOE's role in establishing the environmental viability of the selected project is limited to approving or disapproving participation in the project based on the analyzed environmental consequences of the project as proposed by the participant. Thus, the only reasonable alternative available to DOE is the no action alternative.

Under the no-action alternative, DOE would not provide funding to support demonstration of the TOXECON process on a commercial scale at the Presque Isle Power Plant. In the absence of DOE funds, We Energies would not pursue the proposed project, and the TOXECON process would probably not be demonstrated at a commercial scale, at least in the near term, due to the absence of cost-shared funding and the associated increase in financial risk.

PUBLIC AVAILABILITY: The draft EA was distributed for review and comment to Federal and State agencies and to the public; copies were made available for review at the Peter White Public Library in Marquette, Michigan. Public notices announcing availability of the draft EA for review and comment were published in The Mining Journal, which serves the area potentially affected by the proposed project. One set of comments was received and used in establishing the final EA. No comments expressing opposition to the proposed action were received.

DETERMINATION: Based on the information and analyses in the EA, DOE has determined that the proposed Federal action, to provide cost-shared funding for design, construction, and demonstration testing of the TOXECON process for controlling mercury and other pollutants at the Presque Isle Power Plant in Marquette, Michigan, does not constitute a major Federal action that would significantly affect the quality of the human environment within the meaning of the National Environmental Policy Act. Therefore, an Environmental Impact Statement is not required and DOE is issuing this FONSI.

Issued in Pittsburgh, PA, this 25 day of September, 2003.

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